CLAIMS

1. An antenna matching apparatus comprising:

a plurality of antenna elements;

matching sections respectively connected to said antenna elements that adjust impedance;

a first detection section that detects any one of a signal reflected when power is supplied to said antenna elements, reflection coefficient and voltage standing wave ratio;

a second detection section that detects signals received by said antenna elements;

a storage section that stores control information on said matching sections in a one-to-one correspondence with the distances between the human body and antenna elements; and

a control section that adaptively controls said matching sections using the control information stored in said storage section so as to achieve an impedance matched state.

2. The antenna matching apparatus according to claim 1, wherein when said control section adaptively controls said matching sections so that the value detected by said first detection section decreases or the value detected by said second detection section increases, said control section completes adaptive control processing on any one of said plurality of antenna elements, reads other control

information corresponding to the control information at that time from said storage section and adaptively controls matching sections of other antenna elements using the read control information.

3. The antenna matching apparatus according to claim 1, wherein said control section adaptively controls said matching sections based on a transmission evaluation function expressed by a predetermined multiple of a function including a reflected signal detected by said first detection section and a reception evaluation function expressed by a predetermined multiple of a function including a received signal detected by said second detection section.

4. The antenna matching apparatus according to claim 1, wherein said storage section prestores control information that an impedance matched state is set when the antenna element is placed close to the human body and control information that an impedance matched state is set when the antenna element is not placed close to the human body, and said control section starts adaptive control processing using any of the control information stored in said storage section as initial control information.

5. The antenna matching apparatus according to claim

4, further comprising an input section whereby the user inputs information on whether or not the antenna element is placed close to the human body to said control section.

6. The antenna matching apparatus according to claim 1, wherein a variable capacitance capacitor is used as said matching section and the capacitance value of said variable capacitance capacitor is used as control information.

7. The antenna matching apparatus according to claim 1, wherein a variable capacitance diode is used as said matching section and a control voltage to be applied to said variable capacitance diode is used as control information.

8. The antenna matching apparatus according to claim 1, wherein said matching section comprises a plurality of capacitors having different capacitances and a switch section that selectively switches between said plurality of capacitors.

9. The antenna matching apparatus according to claim 1, wherein said antenna element comprises different resonance frequencies.

10. The antenna matching apparatus according to claim

1, wherein said control section performs adaptive control processing in timing slots other than transmission slots and reception slots.